

What Is Claimed Is:

1. A field emission display panel comprising:

a first electrically insulating plate;

a plurality of emitter stacks formed on said first electrically insulating plate, each of said emitter stacks being positioned parallel to a transverse direction of said first insulating plate and comprises a layer of a first electrically conductive material having a first width and a layer of nanotube emitter having a second width on top, said second width being less than 3/4 of said first width;

a second electrically insulating plate positioned over and spaced-apart from said first electrically insulating plate having an inside surface facing said first plate;

a layer of a second electrically conductive material on said inside surface of said second insulating plate;

a multiplicity of strips of fluorescent powder coating on said second electrically conductive material each for emitting a red, green or blue light upon activation by electrons emitted from said plurality of emitter stacks; and

a plurality of side panels joining peripheries of said first and second electrically insulating plates together forming a vacuum-tight cavity therein.

2. A field emission display panel according to claim 1, wherein said second width of said layer of nanotube emitter being between about 1/4 and about 3/4 of said first width of said layer of first electrically conductive material.

3. A field emission display panel according to claim 1, wherein said second electrically insulating plate further comprises a black matrix layer in-between said multiplicity of strips of fluorescent powder coating.

4. A field emission display panel according to claim 1, wherein said first and second electrically insulating plates are formed of a ceramic material that is substantially transparent.

5. A field emission display panel according to claim 1, wherein said layer of a first electrically conductive material is a cathode for said field emission display panel.

6. A field emission display panel according to claim 1, wherein said layer of a first electrically conductive material is a silver paste.

7. A field emission display panel according to claim 1, wherein said layer of second electrically conductive material is a first anode for said field emission display panel.

8. A field emission display panel according to claim 1, wherein said layer of second electrically conductive material is formed of indium-tin-oxide (ITO).

9. A field emission display panel according to claim 1, wherein said layer of nanotube emitter being formed of a mixture of nanometer dimensioned hollow tubes and a binder material.

10. A field emission display panel according to claim 1, wherein said layer of nanotube emitter being formed of a mixture of nanometer dimensioned hollow tubes of carbon, diamond or diamond-like carbon and a polymeric-based binder.

11. A field emission display panel according to claim 1, wherein each of said multiplicity of strips of fluorescent powder coating emits a light of red, green or blue that is different than the light emitted by its immediate adjacent strips when activated by electrons from said plurality of emitter stacks.

12. A field emission display panel according to claim 1, further comprising a second layer of said first electrically conductive material formed on top of a plurality of rib sections for functioning as a second anode.

13. A method for fabricating a field emission display panel comprising the steps of:

providing a first electrically insulating plate;

forming a plurality of emitter stacks on said first electrically insulating plate by a thick film printing method parallel to a transverse direction of said first plate, each of said emitter stacks comprises a layer of a first electrically conductive material having a first width and a layer of nanotube emitter having a second width on top, said second width being less than 3/4 of said first width;

providing a second electrically insulating plate;

forming a layer of a second electrically conductive material on an inside surface of said second electrically insulating plate facing said first electrically insulating plate when said first and second plates are assembled together;

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forming a multiplicity of fluorescent powder coating strips on said layer of electrically conductive material for emitting a red, green or blue light when activated by electrons; and

joining said first and second electrically insulating plates together by side panels and forming a vacuum-tight cavity therein.

14. A method for fabricating a field emission display panel having a diode structure according to claim 13, wherein said second width is between about 1/4 and about 3/4 of said first width.

15. A method for fabricating a field emission display panel having a diode structure according to claim 13 further comprising the step of printing said layer of a first electrically conductive material in a silver paste.

16. A method for fabricating a field emission display panel according to claim 13 further comprising the step of printing said layer of nanotube emitter from a mixture of a binder and nanometer dimensioned hollow fibers selected from the group consisting of carbon fibers, diamond fibers and diamond-like carbon fibers.

17. A method for fabricating a field emission display panel according to claim 13 further comprising the step of connecting a negative charge to said first electrically conductive material underlying said plurality of emitter stacks and a positive charge to said layer of second electrically conductive material.

18. A method for fabricating a field emission display panel having a diode structure according to claim 13 further comprising the step of coating a black matrix layer on said second electrically insulating plate in-between said multiplicity of strips of fluorescent powder coating.

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19. A method for fabricating a field emission display panel having a diode structure according to claim 13, wherein said multiplicity of fluorescent powder coating strips is formed by a thick film printing technique.

20. A method for fabricating a field emission display panel having a diode structure according to claim 13 further comprising the step of depositing a layer of said first electrically conductive material on top of a plurality of rib sections for functioning as a second anode.